said principal surface.

3. The device of Claim 1, wherein said electrical control element includes two electrodes with a void therebetween, one of said electrodes being fixed to said mechanical element.

4. The device of Claim 1, wherein said optical element is refractive.

5. The device of Claim 1, wherein said optical element is diffractive.

Please cancel Claims 6 and 7.

8. (Amended) An assembly, comprising:

a first plurality of optical devices formed from a first substrate and distributed in a plane of said first substrate; and

a second plurality of optical devices formed from a second substrate and distributed in a plane of said second substrate;

wherein said first and second substrates are bonded together and allow a beam of light to be transmitted through optical elements on both of said substrates; and

wherein each of said optical devices formed on one of said first and second substrates comprises:

a deformable mechanical element extending in a direction parallel to a principal surface of said one substrate;

an optical element supported on said mechanical element and providing at least partial transmission therethrough of light incident thereupon into any of plurality of directions extending closer to a normal to said principal surface than parallel to said principal surface; and

an electrical control element controllably deforming said mechanical element and thereby selecting one of said plurality of directions.

9. The assembly of Claim 8, wherein a position of a mechanical element on said first substrate through which said beam passes determines which of the mechanical elements on said second substrate said beam passes.

10. An optical switch, comprising:

a first substrate having formed therein a first plurality of optical switching elements; and

a second substrate having formed therein a second plurality of said optical switch elements optically associated with said first plurality of optical switching elements;

wherein each said optical switching element comprises

a deformable mechanical element extending in a direction parallel to a principal surface of a corresponding one of said substrates and deformable in a direction perpendicular to said principal surface,

an optical element supported on said mechanical element and providing at least partial transmission therethrough of light incident thereupon into any of plurality of directions extending closer to a normal to said principal surface than parallel to said principal surface, and

an electrical control element controllably deforming said mechanical element and thereby selecting one of said plurality of directions.

11. (Amended) The optical switch of Claim 10, wherein said two substrates are bonded together respectively along said principal surfaces thereof with said switching elements of said first substrate face said switching elements of said second substrate.

12. The optical switch of Claim 10, wherein said each mechanical element includes a plate supporting said optical element and being rotatably supported by two torsion beams.

13. The optical switch of Claim 10, wherein said optical elements are refractive.

14. The optical switch of Claim 10, wherein said optical elements are diffractive.

15. (Amended) A method of manufacturing an optical switch, comprising the steps of:

a first step of fabricating in a first substrate an array of a plurality of optical switching elements;

a second step of fabricating in a second substrate an array of a plurality of optical switching elements; and

bonding together said substrates so that the switching elements of said two substrates face each other;

wherein each of said optical switching elements includes

a deformable mechanical element,

an electrical control element controlling an angular orientation of said mechanical element, and

a transmissive optical element supported on said mechanical element and allowing passage of light between said two arrays of switching elements.

16. The method of Claim 15, wherein said bonding step is performed after said two fabricating steps.

17. (Amended) A method of manufacturing an optical switch, comprising the steps of:

a first step of fabricating in a first substrate an array of a plurality of optical switching elements;

a second step of fabricating in a second substrate an array of a plurality of optical switching elements; and

bonding together said substrates so that the switching elements of said two substrates face each other;

wherein each of said optical switching elements includes

a deformable mechanical element,

an electrical control element controlling an angular orientation of said mechanical element, and

a transmissive optical element supported on said mechanical element and allowing passage of light between said two arrays of switching elements, wherein said bonding step is performed between said two fabricating steps; and

wherein said bonding step is performed between said two fabricating steps.

18. The method of Claim 15, wherein said two fabricating steps micro electromechanical fabricating techniques.

19. The method of Claim 18, wherein said techniques include lithography, etching, and at least one of sputtering and chemical vapor deposition.

20. (New) The assembly of Claim 1, wherein said deformable mechanical element in respective ones of said optical switching devices tilts about respective axes parallel to said principal surface.

21. (New) The assembly of Claim 1, where said deformable mechanical element in respective ones of said optical switch devices is rotatable out of a plane of said principal surface.

22. (New) The assembly of Claim 1, further comprising a two-dimensional array of optical fibers optically coupled respectively with corresponding ones of said optical elements.

23. (New) An assembly, comprising:

a first plurality of the devices of Claim 1 formed from a first one of said substrates and distributed in a plane of said first substrate; and

a second plurality of the devices of Claim 1 formed from a second one of said substrates and distributed in a plane of said second substrate;

wherein said first and second substrates are bonded together and allow a beam of light to be transmitted through optical elements on both of said substrates.

24. (New) The assembly of Claim 8, wherein said two substrates are bonded together respectively along said principal surfaces thereof.

25. (New) The method of Claim 15, wherein said first and second substrates are bonded together respectively along said principal surfaces thereof.

26. (New) An optical switch, comprising:

a first substrate having formed within a first principal surface thereof a first array of at least partially transmissive first optical elements which are individually tiltable about respective first axes extending parallel to said first principal surface; and

a second substrate having formed within a second principal surface thereof a second array of at least partially transmissive second optical elements which are individually tiltable about respective second axes extending parallel to said second principal surface;

wherein optical paths are selectively formed between said first and second optical elements by tilting selected ones of said first and second optical elements.

27. (New) The optical switch of Claim 26, wherein said first and second substrates are juxtaposed with said first and second principal surfaces facing each other.

28. (New) The optical switch of Claim 26, wherein said first and second substrates are bonded together along said first and second principal surfaces.

29. (New) The optical switch of Claim 26, further comprising control elements respectively associated with individual ones of said first and second optical elements to effect tilting thereof.

30. (New) The optical switch of Claim 26, wherein said first and second arrays are both two-dimensional arrays.